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EXAMINER
LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/773,605	OHMI ET AL.
	Examiner	Art Unit
	Jennifer A. Leung	1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 7-33* is/are pending in the application.

4a) Of the above claim(s) *7-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 21-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1 and 7-33* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7-19-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment submitted on June 14, 2004 has been received and carefully considered. The changes made to the Specification and Drawings are acceptable. Claims 2-6 are cancelled. Claims 7-20 are withdrawn from consideration. Claims 21-33 are newly added. Claims 1 and 21-33 remain under prosecution. Applicant's Information Disclosure Statement (IDS) submitted on July 19, 2004 has been received and considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 23-25 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 23 and 27, the structural limitation of "a thick plate" (claim 23, line 17; claim 27, line 2) is considered vague and indefinite, as the term "thick" is a relative term. The term "thick" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102 and § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 and 21-33 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ohmi et al. (EP 0 878 443). Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Regarding claims 1, 23, 26, 28, 31 and 32, Ohmi '443 (FIG. 45; page 19, lines 10-14, 49-50) discloses an apparatus comprising:

a reactor (i.e., water-generating reactor **33**) having an upstream gas inlet side, a downstream moisture outlet side, and a catalyst (i.e., platinum coating film) for generating moisture from hydrogen and oxygen (i.e., introduced via **H_2**--->, **O_2**--->); and

means for reducing pressure provided on the downstream side of the reactor **33**, wherein the

means comprises a filter (i.e., filter **F3** is inherently capable of reducing pressure downstream of the reactor and maintaining an internal high pressure within the reactor, as evidenced by the filter comprising "a squeezing mechanism that permits adjustment of pressure or produces pressure loss", as defined on page 12, lines 9-15, of Applicant's specification).

In view of the newly added structural limitations, Ohmi '443 (FIG. 43; page 18, lines 57) further discloses the reactor **33** comprising,

a first reactor structural component (i.e., body member **22**) having a material gas supply joint **24** defining a material gas supply passage **24a**;

a second reactor structural component (i.e., body member **23**) having a moisture gas take-out joint **25** defining a moisture outlet passage **25a**, wherein the structural components are mated to form a reactor shell **21** having an interior space (i.e., recess **22a**, **23a**), and wherein the second component **23** defines an inside wall surface **32**; and

a reflector(s) comprising a first reflector (i.e., reflector plate **29a**) disposed in the interior space **22a** to face the material gas supply passage **24a**, and/or a second reflector (i.e., reflector plate **29a'**) disposed in the interior space **23a** to face the moisture outlet passage **25a**;

wherein the first and second reflectors **29a** and **29a'** comprise identical flat plates of a given thickness (i.e., bottom surfaces **29c**; see FIG. 43) symmetrically disposed in the interior space, and wherein the catalyst comprises a platinum coated catalyst layer (i.e., a platinum coating film) provided on the inside wall surface **32** of the second reactor structural component **23**.

Additionally, the apparatus comprises a process chamber (i.e., semiconductor manufacturing equipment **40**; page 19, lines 10-14; FIG. 45), wherein the reactor **33** is connected

to feed the moisture gas to the process chamber **40**, via a flow-line containing the means for reducing pressure, filter **F3**.

Ohmi '443 is silent as to the reactor **33** generating moisture from the catalytic reaction of hydrogen and oxygen at a temperature "not higher than 450°C", or at a temperature "set in the range of 300°C to 450°C", or at a temperature "selected from the group consisting of 300°C, 350°C and 400°C," or at a temperature such that "the difference between the set temperature and an ignition point of hydrogen is set between 190°C and 230°C." However, Ohmi et al. (page 19, lines 22-24) discloses that,

> "The reactor **33** is equipped with a heater and, where necessary, cooling equipment, during operation of the reactor **33**, the temperature being controlled to not allow reaction heat to heat the reactor **33** to over 500 °C by adjusting the supply rates (water generation rate) of O_2 and H_2 or by operating the cooling equipment."

For instance, Ohmi '443 discloses the reactor temperature being maintained between 200 °C and 500 °C, such that the temperature is below an ignition temperature of the hydrogen, to allow the hydrogen and oxygen to react and generate water while preventing the combustion of hydrogen and oxygen (reference claims 1 and 2).

Thus, the apparatus of Ohmi '443 is *inherently capable of* maintaining the catalytic reaction of hydrogen and oxygen below the upper limit of 450 °C, or within the range of 300 °C to 450°C, or at any of the instantly recited temperatures, by simply adjusting the reactant supply rate or operating the cooling equipment. Furthermore, *it would have been obvious* for one of ordinary skill in the art at the time the invention was made to select an appropriate temperature for catalytic reaction in the reactor **33** of Ohmi'443 (i.e., such as the instantly recited temperature ranges), on the basis of suitability for the intended use and absent showing any unexpected

results thereof, because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Also, numerical ranges that overlap prior art ranges were held to have been obvious. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960).

Regarding claims 21, 24, 27 and 29, given that the direction of inclination is relative, as instantly claimed, the apparatus of Ohmi '443 meets the claims, since the first reflector **29a** and second reflector **29a'** each comprise a peripheral portion (i.e., peripheral walls **29d**) inclined in cross section, towards their respective structural components **22** and **23** (see FIG. 43).

Regarding claims 22, 25 and 30, the internal pressure within the process chamber is not considered an element of the apparatus but a process limitation, and therefore, the apparatus of Ohmi '443 structurally meets the claim.

Regarding claim 33, Ohmi '443 is silent as to the apparatus generating moisture at a flow rate of, specifically, 2000 cc/minute. However, Ohmi '443 (page 19, lines 22-24) evidences that the apparatus is inherently capable of achieving other moisture flow rates, by merely adjusting the supply rates of O_2 and H_2...

> "... the temperature being controlled to not allow reaction heat to heat the reactor **33** to over 500 °C by *adjusting the supply rates (water generation rate) of O_2 and H_2...*"

and Ohmi et al. (page 20, lines 7-11) further discloses,

> "... even if oxygen rich or hydrogen-rich mixture gas is used, a practical water generation amount of 1000 cc/min. *or more* can be easily be obtained safely with a comparatively compact reactor body..."

See also, page 19, lines 4-6. The apparatus of Ohmi '443 structurally meets the claims, since the apparatus is *inherently capable of* producing moisture flow rates in excess of 1000 cc/min. Furthermore, *it would have been obvious* for one of ordinary skill in the art at the time the invention was made to select an appropriate moisture generating capacity for the reactor **33** in the apparatus of Ohmi '443, on the basis of suitability for the intended use and absent showing any unexpected results thereof, because where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

4. Claims 1 and 21-33 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ohmi et al. (WO 98/57884). [NOTE: the English Language Equivalent (US 6,093,662) is being cited below, for translation purposes only]. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Regarding claims 1, 23, 26, 28, 31 and 32, Ohmi et al. (FIG. 7; column 7, lines 35-46) discloses an apparatus comprising:

a reactor **1** having an upstream gas inlet side, a downstream moisture outlet side, and a catalyst (i.e., a platinum-coated catalyst layer; column 10, lines 7-25) for generating moisture from hydrogen and oxygen (i.e., supplied via **H_2**--->, **O_2**--->); and

means for reducing pressure provided on the downstream side of the reactor **1**, wherein the means comprises a filter **F_3** and valves **V6**, **V7** (FIG. 7), or in a prior embodiment, suction regulating valve **SV**, valves **V4**, **V5**, **V6** for vacuum pump **P** (FIG. 1). The filter **F_3** is inherently capable of reducing pressure downstream of the reactor and

maintaining an internal high pressure within the reactor, as evidenced by the filter comprising "a squeezing mechanism that permits adjustment of pressure or produces pressure loss", as defined on page 12, lines 9-15, of Applicant's specification. The valves **V4**, **V5**, **V6**, **V7** or **SV** are also inherently capable of reducing pressure downstream of the reactor and maintaining an internal high pressure within the reactor, as evidenced by the valves being capable of adjusting the flow rate of moisture, and hence, the pressure within the reactor.

In view of the newly added structural limitations, Ohmi et al. (FIG. 8, 9; column 9, line 1 to column 10, line 6) further discloses reactor **1** comprising:

a first reactor structural component **2** having a material gas supply joint **4** defining a material gas supply passage **4a**;

a second reactor structural component **3** having a moisture gas take-out joint **5** defining a moisture outlet passage **5a**, wherein the structural components **2**, **3** are mated to form a reactor shell **1** having an interior space **1a**, and wherein the second component **3** defines an inside wall surface **3a**; and

a reflector(s) comprising a first reflector (i.e., inlet reflector unit **9**) disposed in the interior space **1a** to face the material gas supply passage **4a**, and/or a second reflector (i.e., outlet reflector unit **12**) disposed in the interior space **1a** to face the moisture outlet passage **5a**; wherein the first and second reflectors **9** and **12** may comprise identical flat plates of a given thickness (i.e., flat disk portions **9b** and **12b**, made of stainless steel and of about the same diameter; see FIG. 9; column 9, line 56 to column 10, line 6) symmetrically disposed in the interior space, and wherein the catalyst comprises a platinum coated catalyst layer **13** provided on the inside wall surface **3a** of the second reactor structural component **3**.

Additionally, the apparatus comprises a process chamber (i.e., semi-conductor manufacturing facilities **SM**; FIG. 7), wherein reactor **1** is connected to feed the moisture gas to the process chamber **SM**, via a flow-line containing the means for reducing pressure.

Ohmi et al. is silent as to reactor **1** generating moisture from the catalytic reaction of hydrogen and oxygen at a temperature "not higher than 450°C", or at a temperature "set in the range of 300°C to 450°C", or at a temperature "selected from the group consisting of 300°C, 350°C and 400°C," or at a temperature such that "the difference between the set temperature and an ignition point of hydrogen is set between 190°C and 230°C." However, Ohmi et al. (column 7, lines 57-63) discloses that,

> "The gas preheating coils H_1 and H_1' are to heat the mixture gas or oxygen to a desired temperature not higher than 200°C. Reactor **1** is provided with a heater and, as necessary, a cooling unit so that if the reaction heat pushes up the temperature in the reactor in operation to over 500°C. (which rarely happens, though), the cooling unit will be activated to bring the temperature down below 500°C."

Thus, the apparatus of Ohmi et al. is *inherently capable of* maintaining the catalytic reaction of hydrogen and oxygen below the upper limit of 450 °C, or within the range of 300 °C to 450°C, or at any of the instantly recited temperatures, by simply adjusting the temperature of the gas preheating coils H_1 and H_1' or activating the cooling equipment. Furthermore, *it would have been obvious* for one of ordinary skill in the art at the time the invention was made to select an appropriate temperature for catalytic reaction in the reactor **1** of Ohmi et al. (i.e., such as the instantly recited temperature ranges), on the basis of suitability for the intended use and absent showing any unexpected results thereof, because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges

involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Also, numerical ranges that overlap prior art ranges were held to have been obvious. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960).

Regarding claims 21, 24, 27 and 29, given that the direction of inclination is relative, as instantly claimed, the apparatus of Ohmi et al. meets the claims, since the first reflector **9** and second reflector **12** each comprise a peripheral portion (i.e., casing portions **9a** and **12a**; see FIG. 9) inclined in cross section, towards their respective structural components **2** and **3**.

Regarding claims 22, 25 and 30, the internal pressure within the process chamber **SM** is not considered an element of the apparatus but a process limitation, and therefore, the apparatus of Ohmi et al. structurally meets the claim.

Regarding claim 33, Ohmi et al. is silent as to the apparatus generating moisture at a flow rate of, specifically, 2000 cc/minute. However, Ohmi et al. (column 10, lines 4-6) discloses that for the reactor embodiment of FIG. 9,

> "The volume of the interior space is about 86 cm^3. The catalyst layer is about 99 cm^2 in area. This reactor **1** can generate *not less than 1000 sccm* of moisture."

Column 8, lines 23-35, further suggests that the amount of moisture generated by the reactor **1** is proportional to the specific "construction and capacity" of the reactor, wherein a reactor having a 1000 sccm moisture capacity is merely presented as example.

The apparatus of Ohmi et al. structurally meets the claims, since the apparatus is *inherently capable of* producing moisture flow rates of not less than 1000 sccm, and furthermore, *it would have been obvious* for one of ordinary skill in the art at the time the invention was made to select an appropriate moisture generating capacity for the reactor **1** in the apparatus of Ohmi et

al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, because changes in size are obvious, and where the general conditions of a claim are disclosed in the prior art, discovering optimum, workable ranges involves routine skill in the art.

5. Claims 1 and 21-33 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Minami et al. (US 6,334,962). Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Regarding claims 1, 23, 26, 28, 31 and 32, Minami et al. (FIG. 1, 4, 5, 6) discloses an apparatus comprising:

a reactor (i.e., reactor for the generation of moisture **1**) having an upstream gas inlet side, a downstream moisture outlet side, and a catalyst (i.e., platinum-coated catalyst layer **13**; FIG. 7) for generating moisture from hydrogen and oxygen; and

means for reducing pressure provided on the downstream side of the reactor 1, said means comprising a filter $\mathbf{F_3}$ (FIG. 1) or valve $\mathbf{V_{12}}$ (FIG. 4), for example.

The filter $\mathbf{F_3}$ is inherently capable of reducing pressure downstream of reactor **1** and maintaining an internal high pressure within the reactor, as evidenced by the filter comprising "a squeezing mechanism that permits adjustment of pressure or produces pressure loss", as defined on page 12, lines 9-15, of Applicant's specification. The valve $\mathbf{V_{12}}$ is also inherently capable of reducing pressure downstream of the reactor and maintaining an internal high pressure within the reactor, as evidenced by the valves being capable of adjusting the flow rate of moisture, and hence, the pressure within the reactor.

In view of the newly added structural limitations, Minami (FIG. 7; column 1, lines 43 to

column 2, line 5) further discloses the reactor **1** comprising:

a first reactor structural component **2** having a material gas supply joint **4** defining a material gas supply passage **4a**;

a second reactor structural component **3** having a moisture gas take-out joint **5** defining a moisture outlet passage **5a**, wherein the structural components **2**, **3** are mated to form a reactor shell **1** having an interior space, and wherein the second component **3** defines an inside wall surface (i.e., identified by **13**); and

a reflector(s) disposed in the interior space, comprising a first reflector **9** disposed in the interior space to face the material gas supply passage **4a**, and/or a second reflector **12** disposed in the interior space to face the moisture outlet passage **5a**;

wherein the first and second reflectors **9** and **12** comprise identical flat plates of a given thickness symmetrically disposed in the interior space (i.e., the flat plates defined by the bottom surfaces of reflectors **9** and **12**, not labeled; FIG. 7), and wherein the catalyst comprises a Pt-coated catalyst layer **13** provided on the inside wall surface of the second reactor structural component **3**.

Additionally, the apparatus comprises a process chamber (i.e., semiconductor manufacturing facilities **SM**, such as an oxidation chamber; column 6, lines 19-36), wherein reactor **1** is connected to feed the moisture gas to the process chamber **SM**, via a flow-line containing the means for reducing pressure, filter $\mathbf{F_3}$ and/or valve $\mathbf{V_{12}}$.

Minami is silent as to reactor **1** generating moisture from the catalytic reaction of hydrogen and oxygen at a temperature "not higher than 450°C", or at a temperature "set in the range of 300°C to 450°C", or at a temperature "selected from the group consisting of 300°C, 350°C and 400°C," or at a temperature such that "the difference between the set temperature and

an ignition point of hydrogen is set between 190°C and 230°C." However, Minami et al. (column 3, lines 4-14) discloses that,

> "... preheater coils $\mathbf{H_0}$ and $\mathbf{H_1}$ are for heating the material gas mixture or oxygen respectively at not higher than approximately 200°C. The reactor **1** is also provided with a heater and, as necessary, a cooler so that if the reaction heat pushes up the temperature in the reactor in operation to over 500°C (which rarely happens), the cooler will be activated to bring down the temperature below 500°C."

Thus, the apparatus of Minami et al. is *inherently capable of* maintaining the catalytic reaction of hydrogen and oxygen below the upper limit of 450 °C, or within the range of 300 °C to 450°C, or at any of the instantly recited temperatures, by simply adjusting the temperature of the reactant preheater coils $\mathbf{H_0}$ and $\mathbf{H_1}$, and/or adjusting the temperature of the heater provided for the reactor **1**, and/or activating the cooler provided for the reactor **1**. Furthermore, *it would have been obvious* for one of ordinary skill in the art at the time the invention was made to select an appropriate temperature for catalytic reaction in the reactor **1** of Minami et al. (i.e., such as the instantly recited temperature ranges), on the basis of suitability for the intended use and absent showing any unexpected results thereof, because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Also, numerical ranges that overlap prior art ranges were held to have been obvious. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960).

Regarding claims 21, 24, 27 and 29, given that the direction of inclination is relative, as instantly claimed, the apparatus of Minami et al. meets the claims, since the first reflector **9** and second reflector **12** each comprise a peripheral portion (i.e., the casing or peripheral walls of

reflectors **9** and **12**, not labeled; see FIG. 7), inclined in cross section towards their respective structural components **2** and **3**.

Regarding claims 22, 25 and 30, the internal pressure within the process chamber **SM** is not considered an element of the apparatus but a process limitation, and therefore, the apparatus of Minami et al. structurally meets the claim.

Regarding claim 33, Minami et al. is silent as to the apparatus generating moisture at a flow rate of, specifically, 2000 cc/min. Minami et al., however, discloses,

> "The moisture generator illustrated in FIG. 6 can produce *over approximately 1000 sccm* of high purity water. The amount of moisture to be generated and supplied can be controlled relatively easily with high precision by *regulating the feeding of oxygen and hydrogen*..." (column 2, lines 19-28).

The apparatus of Minami et al. structurally meets the claims, since the apparatus is *inherently capable of* producing high moisture flow rates in excess of 1000 cc/min. by simple regulation of the oxygen and hydrogen feed rates. Furthermore, *it would have been obvious* for one of ordinary skill in the art at the time the invention was made to generate an appropriate amount of moisture in the apparatus of Minami et al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, because where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Response to Arguments filed June 14, 2004

6. Applicant's arguments with respect to the rejection of the claims in view of Ohmi et al. (EP 0 878 443) have been fully considered but they are not persuasive.

Beginning on page 22, last paragraph, Applicants argue,

> "... the Examiner appears to argue that a combination of the reactor embodiment (33) and the reactor embodiment (21) is taught by the Ohmi'443 Document... Applicants contend that disassembling and reassembling various embodiment taught by a reference is not the grounds for a proper Section 102 rejection."

The Examiner respectfully disagrees. In making the rejection above, the Examiner has used only a single embodiment of the invention, despite the referencing of the reactor as numeral "**21**" in FIG. 43 and numeral "**33**" in FIG. 45. Support is found on page 7, lines 10-11 and 16, of the Ohmi '443 reference, which specifically states that,

> "Fig. 43 is a schematic longitudinal cross-section view showing a second embodiment of *the third and the fourth water generating reactors* according to this invention;"
>
> "Fig. 45 is an illustration of water-generating equipment using *the third and fourth water generating reactors*;"

Applicant's arguments made on page 23 (second and third paragraphs), regarding the "first reflector", "second reflector", "process chamber" and "moisture generation rate" have been fully considered but are moot in view of the new grounds of rejection, above, as necessitated by amendment.

7. Applicant's arguments made on page 25 (first through fourth paragraphs) regarding rejections made in view of the Ohmi et al. reference (WO 98/57884 or US 6,093,662) have been fully considered, but they are moot in view of the new grounds of rejection, above, as necessitated by amendment.

8. In view of Applicant's amendments to claim 1, the rejections made with respect to Tanabe et al. (US 6,274,098) are withdrawn.

9. Applicant's arguments made on pages 27-28 (second and third paragraphs) regarding rejections made in view of Minami et al. (US 6,334,962) have been fully considered, but they are

moot in view of the new grounds of rejection, above, as necessitated by amendment.

10. In view of Applicant's amendments to claim 1, the rejections made with respect to Ohmi et al. (US 6,180,067) are withdrawn.

11. In view of Applicant's amendments to claim 1, the rejections made with respect to Henrie (US 3,755,075) are withdrawn.

12. Applicant's arguments made under the section titled "Additional Comments" (page 30), have been fully considered, but they are not persuasive. Applicants argue,

> "... the filters, valves and draining tanks taught by the prior art references are intended, as would be recognized by a person of ordinary skill in the art, for removing dust, for regulating the flow rate of the moisture gas, and for removing moisture. None of the prior art references teach, or even suggest, that the "means for reducing pressure" both (1) maintains "an internal high pressure in the reactor" and (2) reduces the pressure in moisture leaving the reactor so that "the moisture gas fed into the process chamber is reduced in pressure by the means for reducing pressure"..."

In response, the Examiner maintains that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Additionally, as noted in Applicant's specification, page 12, lines 9-15,

> "In case a valve is used, the flow rate can be adjusted because the opening of the valve is variable. Thus, the pressure within the reactor for generating moisture can be freely adjusted."

Applicants clearly admit to a direct correlation between the ability to adjust a flow rate and the ability to adjust a pressure within the reactor, thereby rendering Applicants' argument moot.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

As set forth in 37 CFR 1.136(a), a shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
October 5, 2004

Hien Tran

HIEN TRAN
PRIMARY EXAMINER